



Shenzhen Certification Technolohg Service Co., Ltd  
3F, Bldg27,Area A, Tanglang Industrial Zone, Xili Town,  
Nanshan District, ShenZhen, Guang dong, P.R.  
China.

# TEST REPORT

**FCC ID: RDDG5693**

**Applicant** : INTEC INC.  
**Address** : 7600 CORPORATE CENTER DRIVE,SUITE 400 MIAMI,FL33126

**Equipment under Test (EUT):**

**Name** : WIRELESS GUITAR  
**Model** : G5693/G5283/G5284  
**Standards** : FCC PART 15, SUBPART C : 2008 (Section 15.249)

**Report No.** : STE081113555  
**Date of Test** : November 17, 2008  
**Date of Issue** : November 22, 2008

<b>Test Result :</b>	<b>PASS *</b>
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\* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

(Mark Zhu)  
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of ShenZhen Certification Technology Service Co., Ltd. Or test done by ShenZhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by ShenZhen Certification Technology Service Co., Ltd. Approvals in writing.

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## 1 General Information

### 1.1 Description of Device (EUT)

Trade Name	: N/A
EUT	: WIRELESS GUITAR
Model No.	: G5693/G5283/G5284
Model difference	It have similar schematic and PCB layout except for appearance colors and shape.
Type of Antenna	: Integral Antenna
Operation Frequency	: 2402~2480MHZ
Modulation type	GFSK
Power Supply	: DC 6V
Rated PF output Power	87.52dBuV/M(Peak Detector)
Applicant	: INTEC INC.
Address	: 7600 CORPORATE CENTER DRIVE,SUITE 400 MIAMI,FL33126
Manufacturer	: KENXI INDUSTRIAL CO.,LTD
Address	: 3 <sup>rd</sup> Building,Shapu Industrial Road,Songgang,Bao'an ShenZhen,P.R.China

### 1.2 Description of Test Facility

#### Site Description

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou  
EMC Laboratory, No.198 Kezhu Road, Science Town Economic &  
Technology Development District Guangzhou, China 510663

## 2 EMC Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100492	Apr 06,2008	1 Year
LISN	ROHDE&SCHWARZ	ENV216	100093	Apr 06,2008	1Year
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101202	Apr 06,2008	1 Year
Spectrum Analyzer	ANRITSU	MS2651B	6200238316	Apr 06,2008	1 Year
50• Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2008	1 Year
Bilog Antenna	Sunol	JB3	A121206	Apr 06,2008	1 Year
Horn Antenna	EMCO	3115	640201028-06	Apr 06,2008	1 Year
50• Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2008	1 Year
Cable	Resenberger	N/A	NO.1	Apr 06,2008	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr 06,2008	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr 06,2008	1 Year
Single Phase Power Line Filter	Kikusui	LIN40MA-PC R-L	LM002352	Apr 06,2008	1Year
AC Power Source	Kikusui	AC40MA	LM003232	Apr 06,2008	1Year
Test analyzer	Kikusui	KHA1000	LM003720	Apr 06,2008	1Year
ESD Tester	Kikusui	KES4021	LM003537	Apr 08,2008	1 Year
Signal Generator	IFR	2032	203002/100	Apr 08,2008	1 Year
Amplifier	A&R	150W1000	301584	NCR	NCR
Dual Directional Coupler	A&R	DC6080	301508	Apr 06,2008	1 Year
Power Head	A&R	PH2000	301193	Apr 06,2008	1 Year
Power Meter	A&R	PM2002	302799	Apr 06,2008	1 Year
Field Monitor	A&R	FM5004	300329	Apr 06,2008	1 Year
Field Probe	A&R	FP5000	300221	Apr 06,2008	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2008	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2008	1 Year

### 3 Test Procedure

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50  $\mu$  H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS

33 20 dBuV + 10.36 dB + 0.9 dB= 31.26 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.

## 4 Summary of Measurement

Test Item	Test Requirement	Stanadard Paragraph	Result
Radiated Emission	FCC PART 15 : 2008	Section 15.249&15.209	Compliance
Conduction Emission	FCC PART 15: 2008	Section 15.207	Not applicable
Bandwidth requirement	FCC PART 15:2008	Section 15.249	Compliance
Antenna Requirement	FCC PART 15 : 2008	Section 15.203	Compliance

## 5 Radiation Emission

### 5.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

**NOTE:**

- a) The tighter limit applies at the band edges.
- b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

#### LIMITS OF RADIATED EMISSION MEASUREMENT ( FCC 15.209 )

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

**Notes:**

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

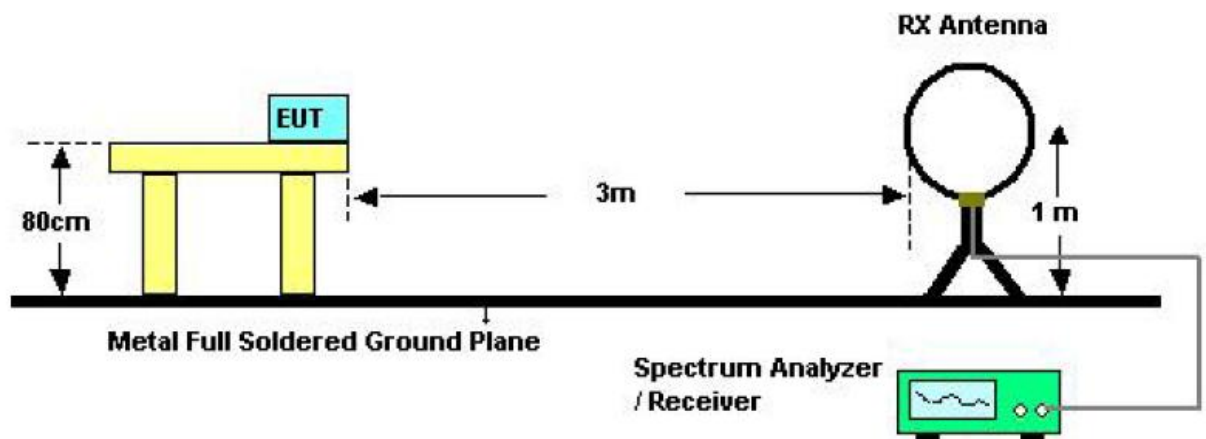
## Limits of Radiation Emission Measurement(15.249)

FCC Part15 (15.249) , Subpart C	
Limit	Frequency Range (MHz)
Field strength of fundamental 50000 $\mu\text{V/m}$ (94 dB $\mu\text{V/m}$ ) @ 3 m	2400-2483.5
Field strength of harmonics 500 $\mu\text{V/m}$ (54 dB $\mu\text{V/m}$ ) @ 3 m	Above 2483.5

Remark: **Emissions attenuated more than 20 dB below the permissible value are not reported.**

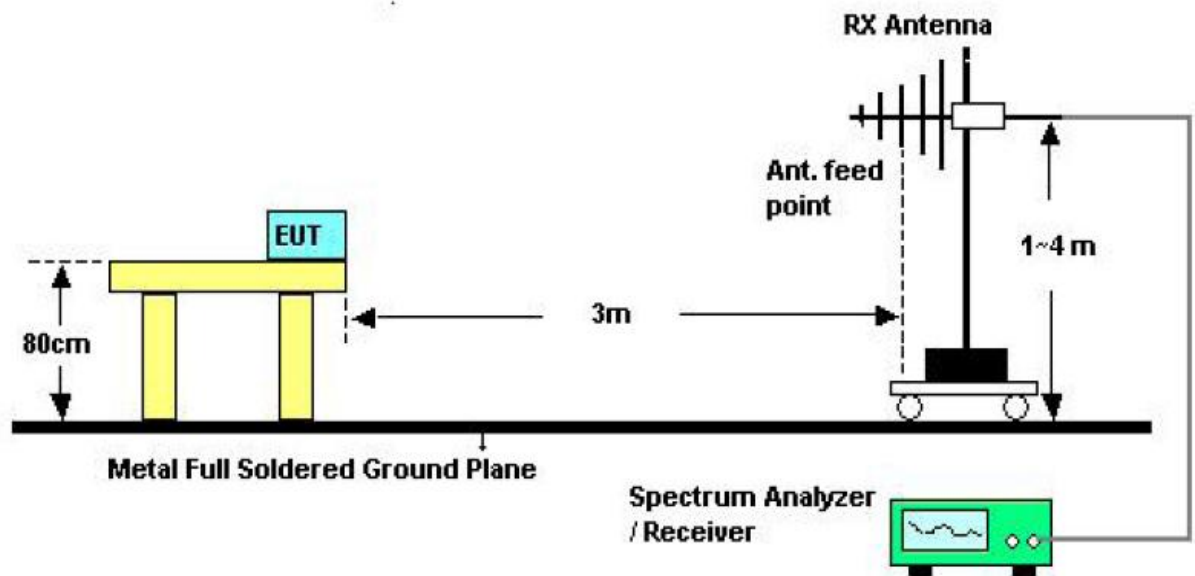
## 5.2 Test Setup

See the next page

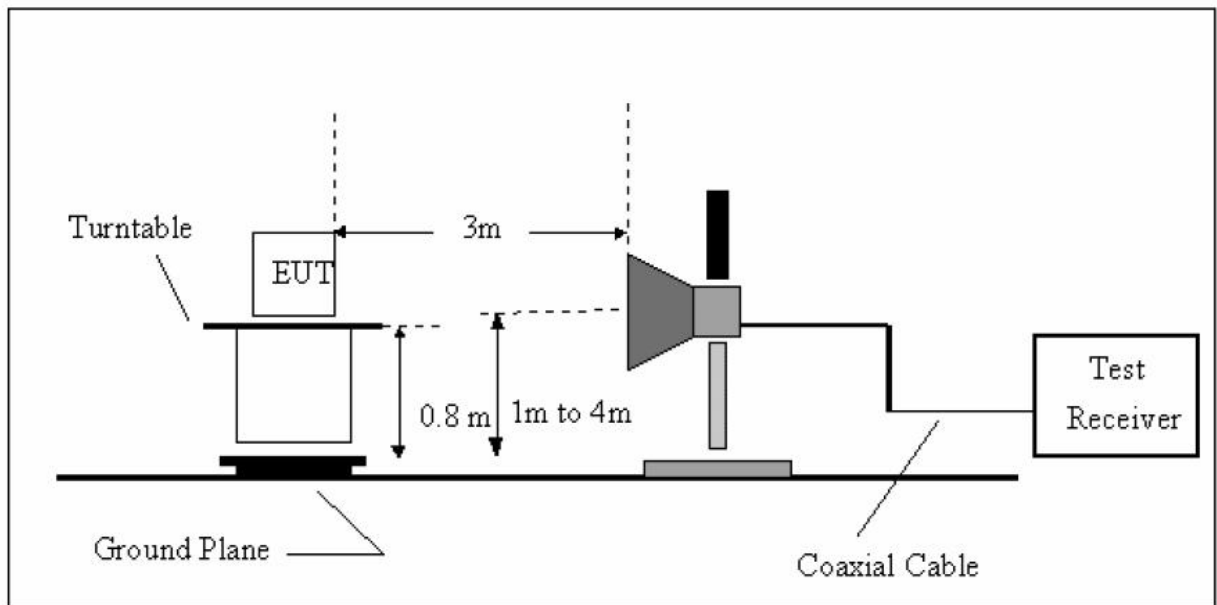


Below 30MHZ Test Setup





Above 30MHz Test Setup



Above 1GHz Test Setup

### 5.3 Test Procedure

- a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
- b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked and then Quasi Peak Detector mode remeasured
- d) If Peak value complies with QP limit Below 1GHz. The EUT is deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
- e) For the actual test configuration, please see the test setup photo.

### 5.4 Test Equipment Setting For emission test.

9KHZ~150KHZ	RBW 200HZ	VBW 1KHZ
150KHZ~30MHZ	RBW 9KHZ	VBW 30KHZ
30MHZ~1GHZ	RBW 120KHZ	VBW 300KHZ
Above 1GHZ	RBW 1MHZ	VBW 3MHZ

### 5.5 Test Condition

Continuous Transmitting in maximum power (The new battery be used during Test)

## 5.6 Test Result

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
170.65	H	34.63	-19.79	14.84	43.50	- 28.66	
207.51	H	33.69	-18.59	15.10	43.50	- 28.40	
236.61	H	32.87	-17.19	15.68	46.00	- 30.32	
436.43	H	28.39	-11.96	16.43	46.00	- 29.57	
630.43	H	28.43	-7.24	21.19	46.00	- 24.81	
693.28	H	28.73	-6.33	22.40	46.00	- 23.60	

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
66.86	V	32.65	-22.55	10.10	40.00	- 29.90	
152.22	V	37.18	-20.11	17.07	43.50	- 26.43	
282.20	V	32.08	-15.78	16.30	46.00	- 29.70	
352.04	V	28.43	-13.34	15.09	46.00	- 30.91	
470.38	V	28.88	-10.82	18.06	46.00	- 27.94	
580.96	V	27.47	-8.90	18.57	46.00	- 27.43	

**Notes:** Above is Below 1GHZ test data

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX 2402MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	20.50	10.48	32.05	52.55	42.53	74.00	54.00	X/E
<b>2402.28</b>	<b>H</b>	<b>53.64</b>	<b>53.25</b>	<b>32.09</b>	<b>85.73</b>	<b>85.34</b>	<b>114.00</b>	<b>94.00</b>	<b>X/F</b>
4804.56	H	53.24	49.03	3.51	56.75	52.54	74.00	54.00	X/H

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX 2402MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	21.19	10.09	32.05	53.24	42.14	74.00	54.00	X/E
<b>2402.28</b>	<b>V</b>	<b>49.73</b>	<b>49.21</b>	<b>32.09</b>	<b>81.82</b>	<b>81.30</b>	<b>114.00</b>	<b>94.00</b>	<b>X/F</b>
4804.66	V	53.89	49.11	3.51	57.40	52.62	74.00	54.00	X/H

**Notes:**AV Means AV detector test data,Peak Means Peak detector test data.  
Emissions attenuated more than 20 dB below the permissible value are not reported.

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX 2448MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2448.32	H	54.40	53.99	32.24	86.64	86.23	114.00	94.00	X/F
4896.64	H	52.97	49.72	3.79	56.76	53.51	74.00	54.00	X/H

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX 2448MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2448.32	V	52.62	52.19	32.24	84.86	84.43	114.00	94.00	X/F
4896.60	V	52.42	49.57	3.79	56.21	53.36	74.00	54.00	X/H

**Notes:**AV Means AV detector test data,Peak Means Peak detector test data.  
Emissions attenuated more than 20 dB below the permissible value are not reported.

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX2480MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.32	H	53.05	52.68	32.34	85.39	85.02	114.00	94.00	X/F
2483.50	H	22.02	14.84	32.34	54.36	47.18	74.00	54.00	X/E
4960.64	H	50.38	46.08	3.98	54.36	50.06	74.00	54.00	X/H

<b>EUT</b>	WIRELESS GUITAR	<b>Model Name</b>	G5693
<b>Temperature</b>	26°C	<b>Relative Humidity</b>	56%
<b>Pressure</b>	960hPa	<b>Test voltage</b>	DC6V
<b>Test Mode</b>	TX2480MHZ		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.30	V	55.18	54.79	32.34	87.52	87.13	114.00	94.00	X/F
2483.50	V	21.63	16.55	32.34	53.97	48.89	74.00	54.00	X/E
4960.62	V	52.35	49.40	3.98	56.33	53.38	74.00	54.00	X/H

**Notes:**AV Means AV detector test data,Peak Means Peak detector test data.  
Emissions attenuated more than 20 dB below the permissible value are not reported.

## 6 Bandwidth

### 6.1 Test limit

Please refer section 15.215

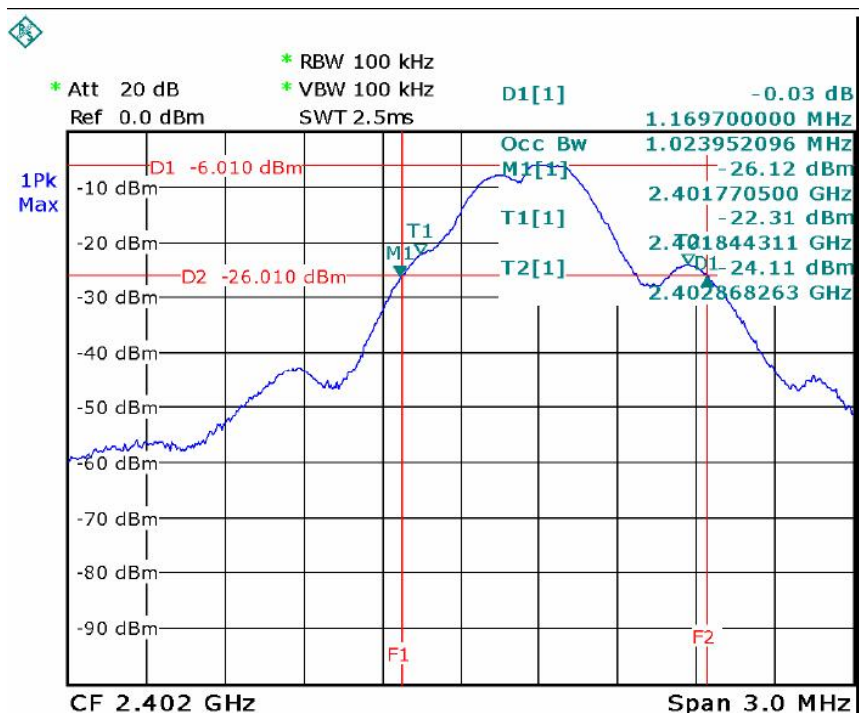
### 6.2 Method of measurement

- The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.
- The test receiver RBW set 100KHZ, VBW set 100KHZ, Sweep time set 2.5ms

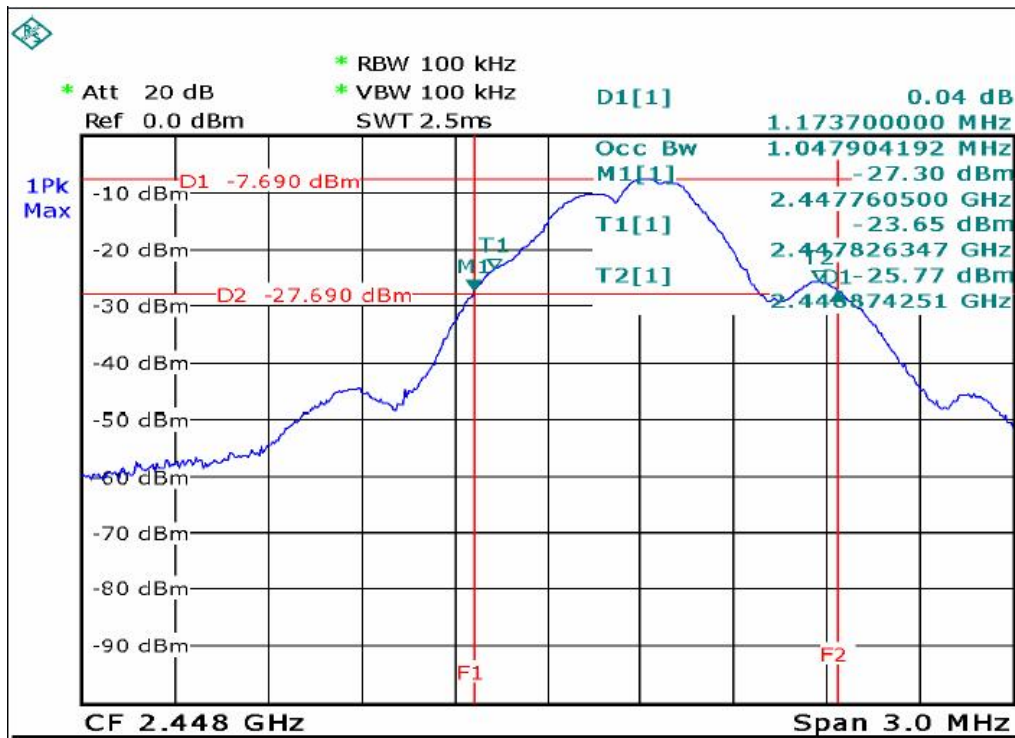
### 6.3 Test Setup

Same as 5.2

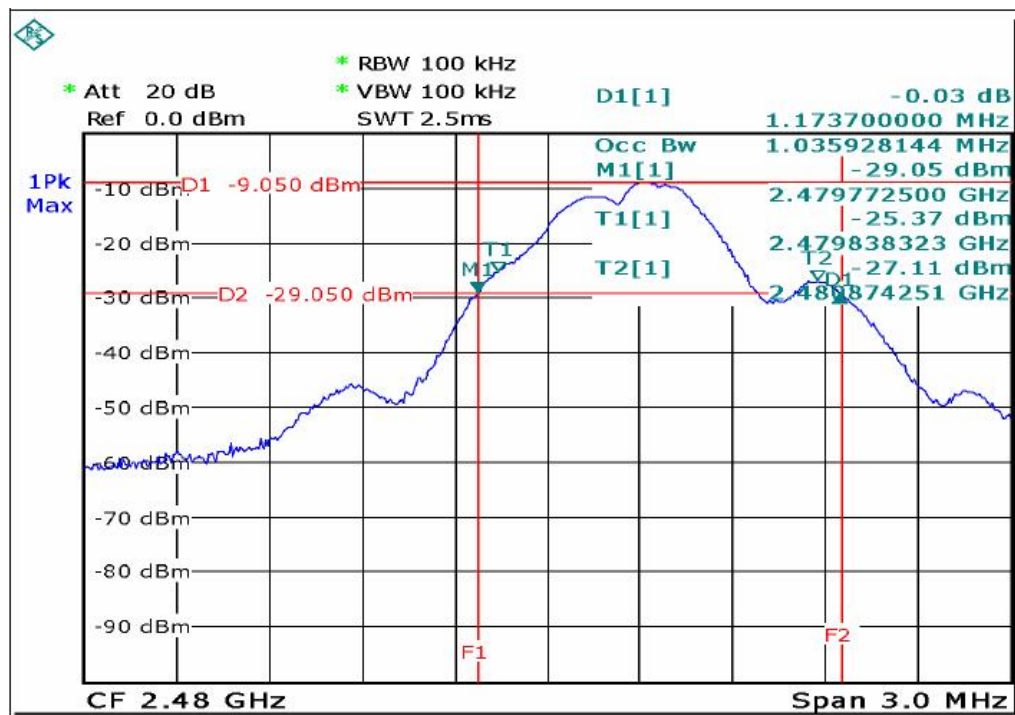
### 6.4 Test Results



2402MHZ 20dB bandwidth test plot



2448MHZ 20dB bandwidth test plot



2480MHZ 20dB bandwidth test plot



## 7 Band Edge Check

### 7.1 Test Limit

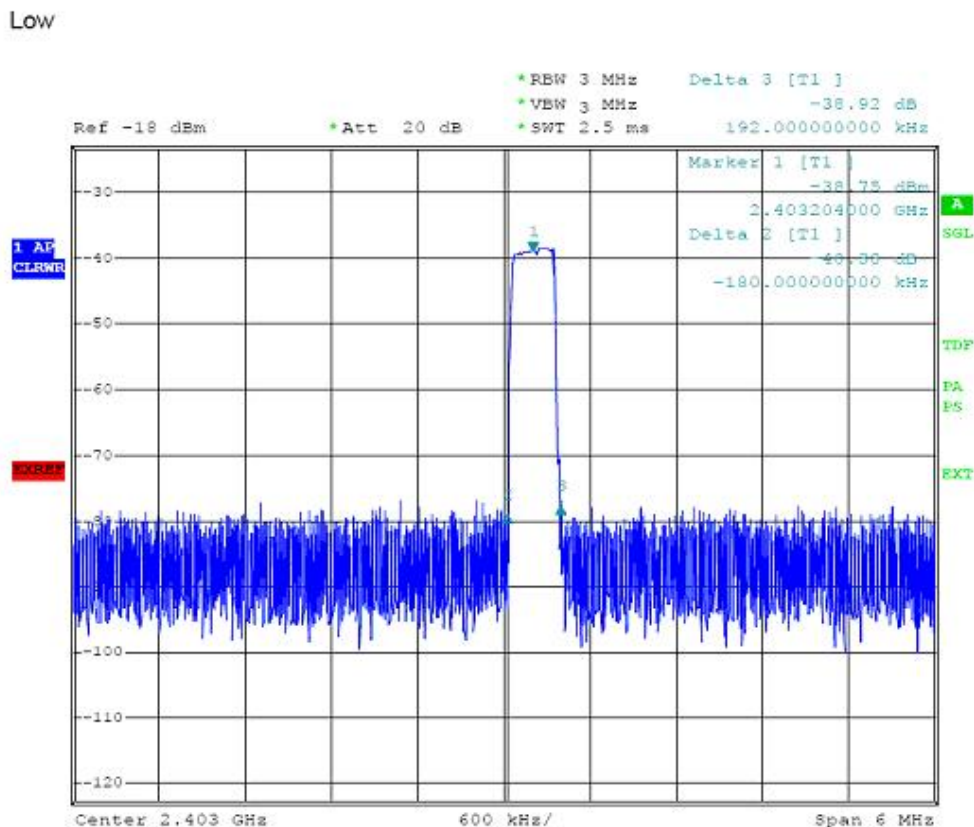
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

### 7.2 Test Procedure

- Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission
- Turning to Low and High frequency, then reduced 50dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency.
- Check the spurious emissions out of band.
- RBW,VBW Setting, please see the following test plot.

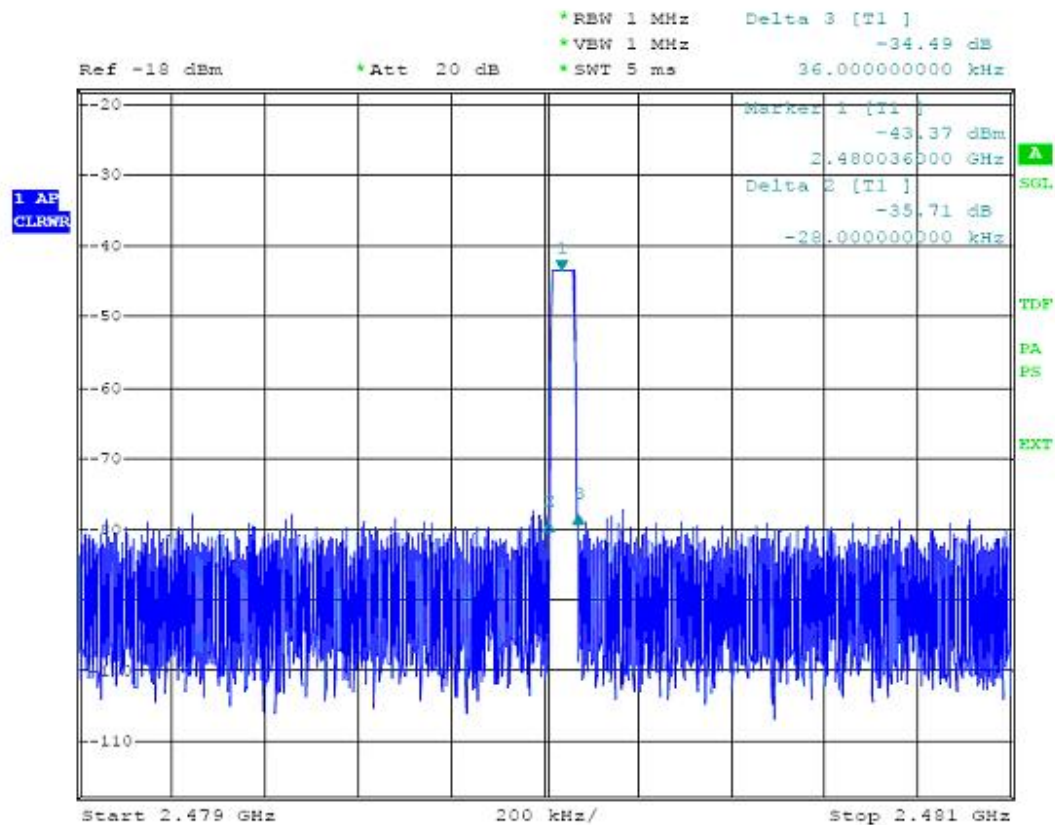
### 7.3 Test Result

#### Low Frequency Test Plot



## High Frequency Test Plot

High



## 8 Antenna Requirement

### 8.1 Standard Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 8.2 Result

The EUT antenna is integral Antenna. It complies with the standard requirement.

## 9 Photographs of Test Setup

### Photographs-Radiated Emission Test Setup in Chamber



## 10Photographs of EUT

**Figure 1**

Photo of EUT

Front View [ ]

Rear View [ ]

Top View [ ✓ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Full View [ ]



**Figure 2**

Photo of EUT

Front View [ ]

Rear View [ ]

Top View [ ]

Bottom View[ ✓ ]

Left View [ ]

Right View [ ]

Full View [ ]



**Figure 3**

Photo of EUT

Front View [ ]

Rear View [ ]

Top View [ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 4**

Photo of EUT

Front View [ ]

Rear View [ ]

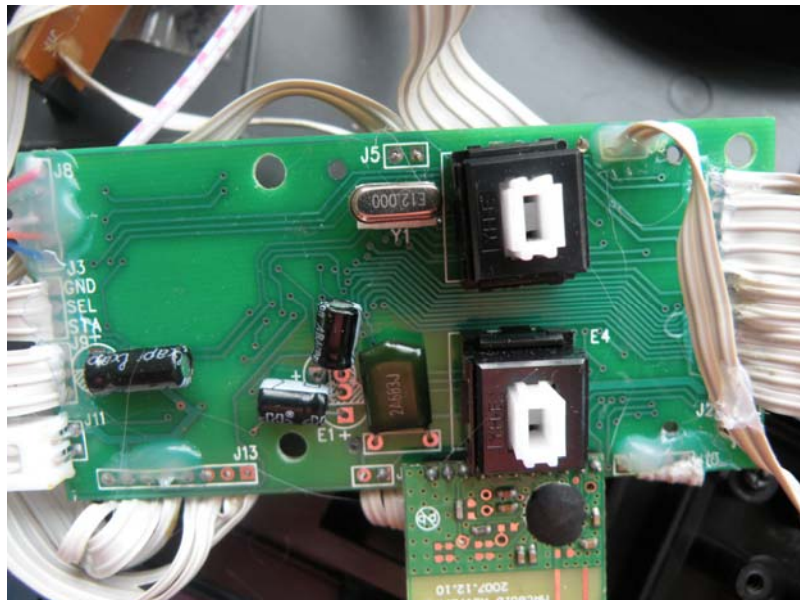
Top View [ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]





**Figure 5**

Photo of EUT

Front View [ ]

Rear View [ ]

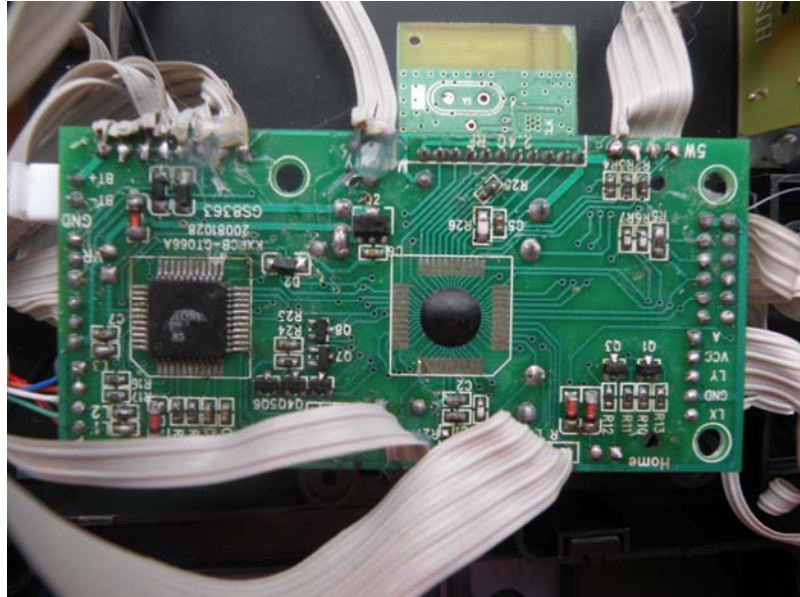
Top View [ ]

Bottom View [ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 6**

Photo of EUT

Front View [ ]

Rear View [ ]

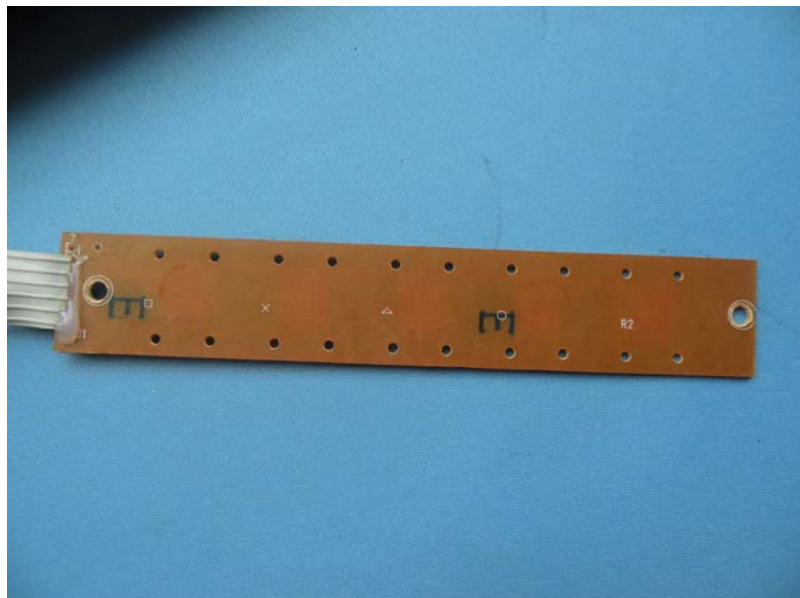
Top View [ ]

Bottom View [ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 7**

Photo of EUT

Front View [ ]

Rear View [ ]

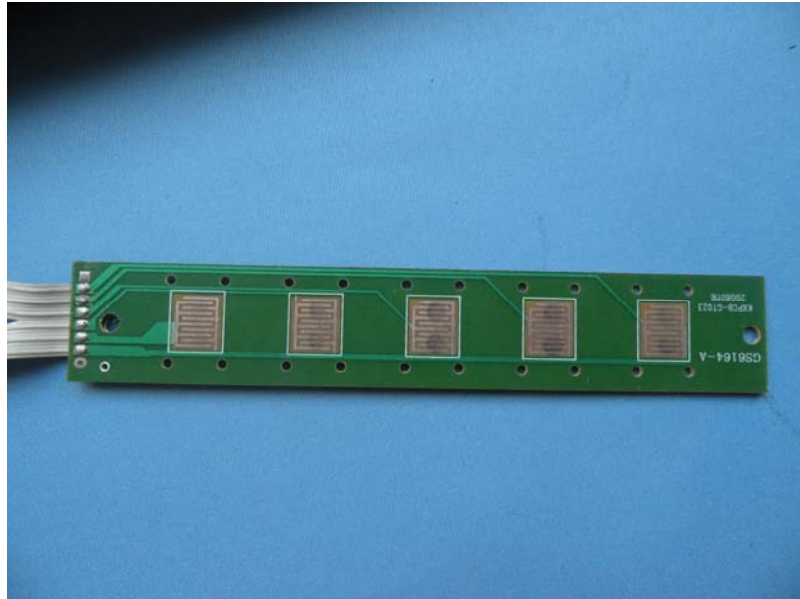
Top View [ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 8**

Photo of EUT

Front View [ ]

Rear View [ ]

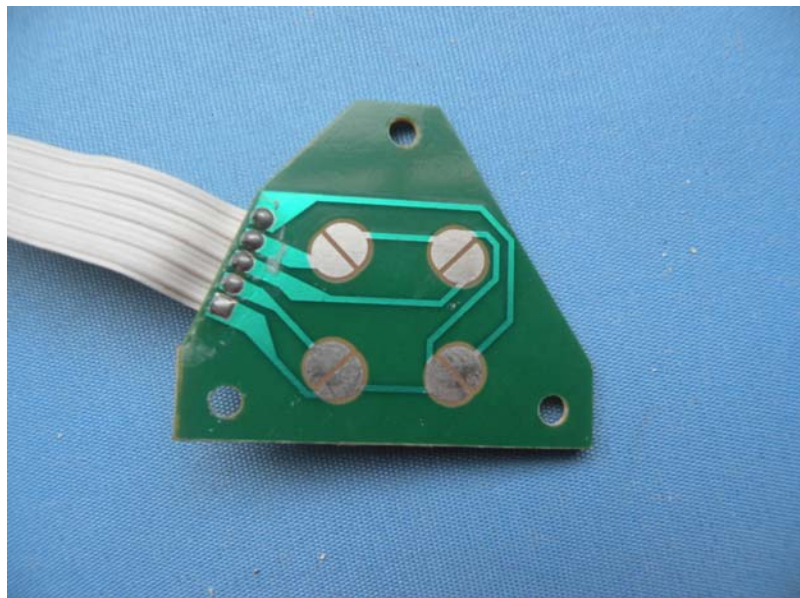
Top View [ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 9**

Photo of EUT

Front View [ ]

Rear View [ ]

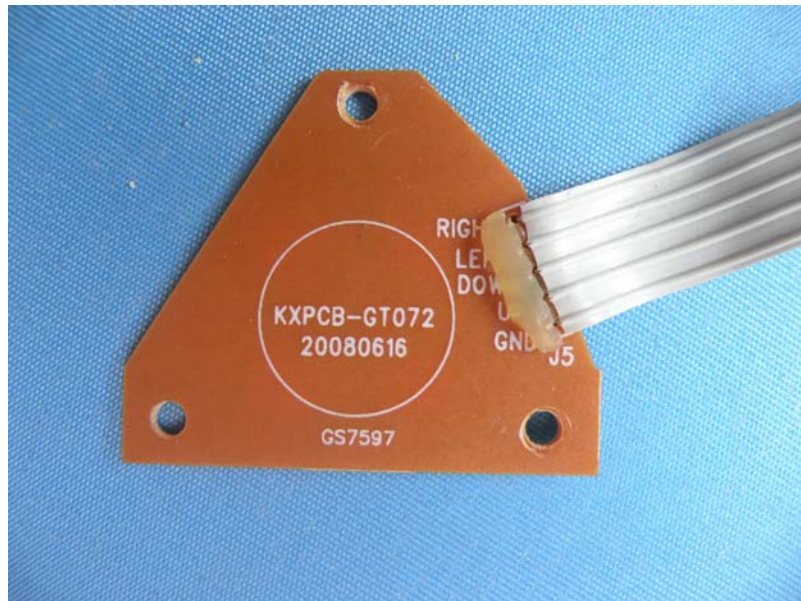
Top View [ ]

Bottom View [ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



**Figure 10**

Photo of EUT

Front View [ ]

Rear View [ ]

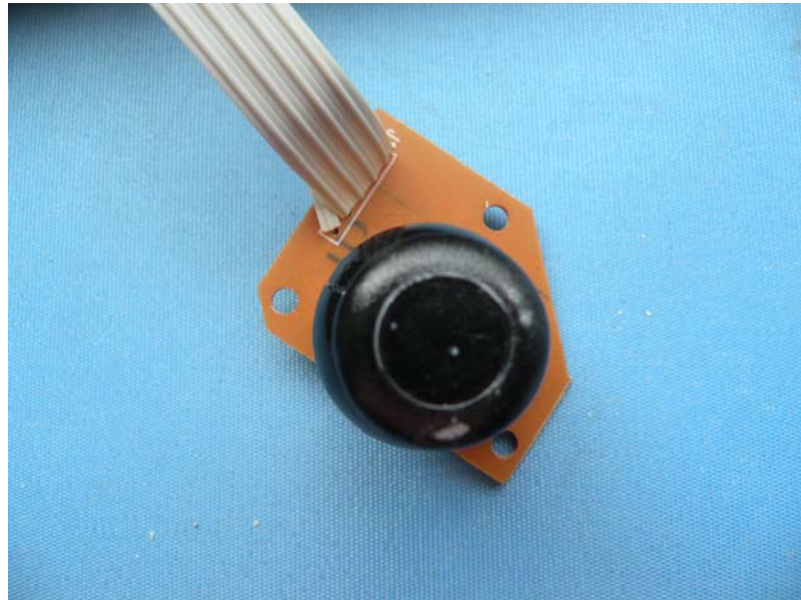
Top View [ ]

Bottom View [ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]





**Figure 11**

Photo of EUT

Front View [ ]

Rear View [ ]

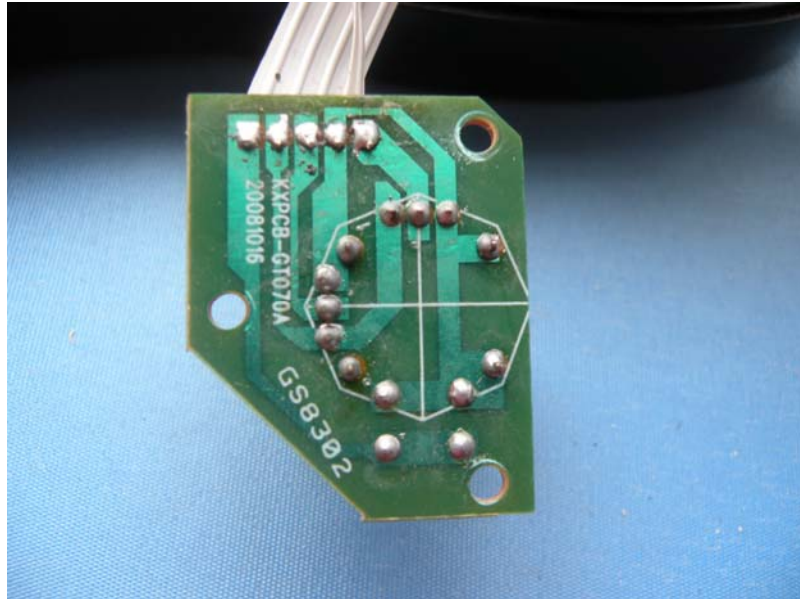
Top View [ ]

Bottom View[ ]

Left View [ ]

Right View [ ]

Internal View [ ✓ ]



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